

Appendix E1

Future Residential Scenario

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Table E1-1. Total risks by exposure pathway at each site/area for the future residential scenario.

	Exposure Pathway								
	Ingestion of Soil	Ingestion of Groundwater	Ingestion of Homegrown Produce	Inhalation of Fugitive Dust	Inhalation of Volatiles from Soil	Inhalation of Volatiles from Groundwater	External Radiation Exposure ^b	Dermal Absorption of Soil	Dermal Absorption of Groundwater
BORAX-01	2E-07	5E-14	3E-15	8E-09	—	—	4E-05	—	—
BORAX-02	7E-09			5E-16					
BORAX-08	2E-08		— ^a						
BORAX-09	2E-10		— ^a						
EBR-08	9E-08	1E-07	1E-07	4E-11	6E-12	9E-08	—	4E-07	4E-08
EBR-10	— ^c		— ^d					— ^e	— ^c
LCCDA-01	3E-07	6E-15	2E-15	4E-08	—	—	5E-05	—	—
LCCDA-02	4E-08		1E-15						
OMRE	4E-06	4E-07	4E-06	4E-09	—	—	6E-05	2E-05	8E-07
Burnring	— ^c	— ^f	— ^f	— ^c	—	—	—	— ^c	— ^c
Firestation Area 1	2E-07	4E-06	4E-06	1E-10	1E-14	6E-10	—	1E-06	4E-08
Firestation Area 2	4E-08			2E-06				3E-07	
Firestation Area 3	2E-06			3E-06				3E-05	
Firestation Area 4	2E-06			5E-05				2E-05	
Fieldstation Area 1	3E-06	4E-07	6E-05	3E-09	—	—	—	2E-05	3E-09
Mine Fuze Area 2	—	5E-05	—	1E-11	—	—	—	—	4E-07
Mine Fuze Area 3	2E-04		4E-03					2E-03	
NOAA Area 2	3E-09	4E-05	—	9E-10	—	—	—	3E-08	4E-07
NOAA Area 2a	2E-06		5E-05					2E-05	
NOAA Area 3	1E-06		3E-05					8E-06	
NOAA Area 5	3E-05		7E-04					3E-04	
NOAA Area 6	1E-05		2E-04					9E-05	
NODA Area 2	2E-05	1E-02	2E-03	5E-09	2E-13	5E-09		2E-05	3E-05

Table E1-1. (continued).

NODA Area 3	— ^g	—	— ^h	—	—	— ^g	—	—
NODA Area 4	3E-06	—	6E-06	—	—	—	5E-05	—
CFA-633	2E-07	1E-05	3E-06	2E-10	—	—	3E-07	3E-08

NOTE: Lack of a risk value in this table indicates that no COPCs were present at the site/area to be evaluated for the specific pathway.

a. Groundwater concentrations of Cs-137 were extremely small (as calculated from the GW Screen model) and would have no effect on risk. Consequently, risk values from this exposure pathway were not calculated.

b. If no risk values are presented in this column for a site/area then no radionuclides were retained in the HHRA.

c. Slope factors are not available for TPH-Diesel. Consequently, risk values from this exposure pathway were not calculated.

d. TPH-diesel was evaluated using the RBCA model (see section 8).

e. Slope factors are not available for 4-Chloro-3-methylphenol. Consequently, risk values from this exposure pathway were not calculated.

f. 4-Chloro-3-methylphenol was not included in the GW Screen, because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

g. Slope factors are not available for 2-Pentanone. Consequently, risk values from this exposure pathway were not calculated.

h. 2-Pentanone was not included in the GW Screen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-2. Total risks by exposure pathway and group for the future residential scenario.

	Exposure Pathway								
	Ingestion of Soil	Ingestion of Groundwater	Ingestion of Homegrown Produce	Inhalation of Fugitive Dust	Inhalation of Volatiles from Soil	Inhalation of Volatiles from Groundwater	External Radiation Exposure ^a	Dermal Absorption of Soil	Dermal Absorption of Groundwater
BORAX	2E-07	5E-14	3E-15	8E-09	—	—	4E-05	—	—
EBR	9E-08	1E-07	1E-07	4E-11	6E-12	9E-08	—	4E-07	4E-08
LCCDA	3E-07	6E-15	3E-15	4E-08	—	—	5E-05	0E+00	0E+00
OMRE	4E-06	4E-07	4E-06	4E-09	—	—	6E-05	2E-05	8E-07
Burnring	— ^b	— ^c	— ^c	— ^b	—	—	—	— ^b	— ^b
Firestation	4E-06	4E-06	6E-05	1E-10	1E-14	6E-10	—	5E-05	4E-08
Fieldstation	3E-06	4E-07	6E-05	3E-09	—	—	—	2E-05	3E-09
Mine Fuze	2E-04	5E-05	4E-03	1E-11	—	—	—	2E-03	4E-07
NOAA	5E-05	4E-05	1E-03	9E-10	—	—	—	4E-04	4E-07
NODA	3E-05	1E-02	2E-03	5E-09	2E-13	5E-09	—	7E-05	3E-05
CFA-633	2E-07	1E-05	3E-06	2E-10	0E+00	0E+00	—	3E-07	3E-08

NOTE: Lack of a risk value in this table indicates that no COPCs were present at the site/area to be evaluated for the specific pathway.

a. If no risk values are presented in this column for a site/area then no radionuclides were retained in the HIRRA.

b. Slope factors are not available for 4-Chloro-3-methylphenol. Consequently, risk values from this exposure pathway were not calculated.

c. 4-Chloro-3-methylphenol was not included in the GW Screen, because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-3. Total risk at each site/group for the future residential scenario.

	Total Risk
BORAX	4E-05
EBR	9E-07
LCCDA	5E-05
OMRE	9E-05
Burnring	— ^a
Firestation	1E-04
Fieldstation	9E-05
Mine Fuze	6E-03
NOAA	1E-03
NODA	2E-02
CFA-633	1E-05

a. Slope factors are not available for 4-Chloro-3-methylphenol and total risk values could not be calculated.

Table E1-4. Risk by ingestion of soil for the future residential scenario.

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation Area 1
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	1.54E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	NTD	—
Antimony	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	9.00E-08	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	1.98E-06	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	1.52E-06	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	NTD	NTD	—	—	—	—	—
Cs-137	1.14E-07	2.57E-09	1.58E-08	2.10E-10	—	—	1.01E-08	—	4.15E-08	—	—
Ra-226	—	—	—	—	—	—	1.24E-07	3.90E-08	—	—	—
U-235	1.79E-08	4.47E-09	—	—	—	—	5.12E-09	—	3.88E-09	—	—
U-238	6.51E-08	—	—	—	—	—	1.18E-07	—	—	—	—
Total for Site	1.97E-07	7.04E-09	1.58E-08	2.10E-10	9.00E-08	NC	2.57E-07	3.90E-08	3.55E-06	NC	1.54E-07

NOTE: A blank cell indicates that this chemical was not a COPC at this site.

NTD indicates that slope factors were not available for COPC at this site.

NC = Not calculated, risk values could not be determined because slope or absorption factors were not available for COPCs at this site/area.

Table E1-4. (continued).

COPCs	Firestation			Fieldstation			Mine Fuze			NOAA		
	Area 2	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	
2,4,6-Trinitrotoluene	3.35E-08	—	2.38E-06	2.78E-06	—	1.96E-04	—	2.12E-06	9.85E-07	3.21E-05	9.40E-06	
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	
4-Amino-2,6-Dinitrotoluene	—	—	—	3.68E-08	—	—	3.09E-09	—	—	—	—	
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	
Antimony	—	—	—	—	—	—	—	—	—	—	—	
Arsenic	—	—	—	—	—	—	—	—	—	—	—	
Benzene	—	—	—	—	—	—	—	—	—	—	—	
Benzo(a)pyrene	—	8.34E-07	—	—	—	—	—	—	—	—	—	
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	
Cadmium	—	—	—	—	—	—	—	—	—	—	—	
Chrysene	—	—	—	—	—	—	—	—	—	—	—	
Copper	—	—	—	—	—	—	—	—	—	—	—	
Lead	—	—	—	—	—	—	—	—	—	—	—	
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	
Phenanthrene	—	8.34E-07	—	—	—	—	—	—	—	—	—	
RDX	—	—	—	—	—	—	—	—	1.05E-08	2.51E-08	—	
Thallium	—	—	—	—	—	—	—	—	—	—	—	
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	
Cs-137	—	—	—	—	—	—	—	—	—	—	—	
Ra-226	—	—	—	—	—	—	—	—	—	—	—	
U-235	—	—	—	—	—	—	—	—	—	—	—	
U-238	—	—	—	—	—	—	—	—	—	—	—	
Total for Site	3.35E-08	1.67E-06	2.38E-06	2.81E-06	—	1.96E-04	3.09E-09	2.13E-06	1.01E-06	3.21E-05	9.40E-06	

Table E1-4. (continued).

COPCs	NODA				CFA-633
	Area 2	Area 3	Area 4		
2,4,6-Trinitrotoluene	1.07E-07	—	—	—	1.57E-08
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—
2-Pentanone	NTD	NTD	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—
4-Chloro-3-methylphenol	NTD	—	—	—	—
Antimony	NTD	—	—	—	—
Arsenic	—	—	—	—	—
Benzene	—	—	—	—	—
Benzo(a)pyrene	—	—	2.10E-06	—	—
Benzo(g,h,i)perylene	2.21E-09	—	—	—	—
Cadmium	—	—	—	—	—
Chrysene	—	—	—	—	—
Copper	NTD	—	—	—	—
Lead	NTD	—	—	—	—
Methaprylene	—	—	NTD	—	—
Phenanthrene	—	—	1.18E-06	—	—
RDX	2.36E-05	—	—	1.70E-07	—
Thallium	—	—	—	—	—
TPH-Diesel	—	—	NTD	—	—
Cs-137	—	—	—	—	—
Ra-226	—	—	—	—	—
U-235	—	—	—	—	—
U-238	—	—	—	—	—
Total for Site	2.37E-05	NC	3.27E-06	1.86E-07	

Table E1-5. Risk by groundwater ingestion for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	4.00E-06	3.93E-07	5.07E-05	4.11E-05	1.71E-05	2.33E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	NC ^a	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	NTD	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	1.45E-07	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	5.17E-09	—	5.36E-12	—	—	—	8.43E-11	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	3.40E-10	—
Cadmium	—	—	—	—	—	—	—	—	—	NTD	—
Copper	—	—	—	—	—	—	—	—	—	NTD	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	2.03E-09	—	—	—	1.79E-08	—
RDX	—	—	—	—	—	—	—	—	1.62E-06	1.34E-02	1.06E-05
Thallium	—	—	—	—	—	—	—	—	—	NTD	—
TPH-Diesel	—	*	—	—	—	—	—	—	—	*	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	1.40E-16	3.47E-15	—	—	—	—	—	—	—
U-235	1.07E-14	—	2.70E-16	1.57E-14	—	—	—	—	—	—	—
U-238	4.17E-14	—	6.01E-15	0.00E+00	—	—	—	—	—	—	—
Chrysene	—	—	—	3.71E-07	—	—	—	—	—	—	—
Total for Site	5.24E-14	1.45E-07	6.42E-15	3.76E-07	—	4.01E-06	3.93E-07	5.07E-05	4.28E-05	1.35E-02	1.09E-05

NOTE: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no slope factors were available for the COPC.

NC not calculated

*See RBCA Model Results for further information on TPH-Diesel Risks at EBR and NODA.

a. 4-Chloro-3-methylphenol was not included in the GW Screen, because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-6. Risk by ingestion of homegrown produce for the future residential scenario.

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	4.08E-06	1.52E-06
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	NC ^c	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	1.18E-07	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	1.79E-06	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	2.06E-06	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	NC ^b	—	—	—	—	—	—
Cs-137	—	—	NC ^a	NC ^a	—	—	—	—	—	—	—	v
Ra-226	—	5.05E-16	4.96E-16	—	—	—	—	1.25E-15	1.13E-15	—	—	—
U-235	2.10E-15	—	—	—	—	—	—	1.25E-17	—	7.29E-16	—	v
U-238	—	—	—	—	—	—	—	3.23E-16	—	—	—	—
Total for Site	2.60E-15	4.96E-16	—	—	1.18E-07	—	1.58E-15	1.13E-15	3.85E-06	—	4.08E-06	1.52E-06

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD = Indicates that no slope factors were available for the COPC in the MSTR TOX TBL

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA		
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 3	Area 5	Area 6
2,4,6-Trinitrotoluene	—	5.13E-05	5.91E-05	—	4.18E-03	—	5.33E-05	2.92E-05	6.90E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	2.08E-04
2-Pentanone	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	7.54E-07	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—
Phenanthrene	—	2.67E-06	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	3.00E-07	4.63E-07	—
Thallium	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—
Total for Site	3.43E-06	5.13E-05	5.91E-05	—	4.18E-03	—	5.36E-05	2.97E-05	6.90E-04
									2.08E-04

COPCs	NODA			CFA-633
	Area 2	Area 3	Area 4	
2,4,6-Trinitrotoluene	5.74E-06	—	—	3.81E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	NC ^d	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	NTD	—	—	—
Arsenic	—	—	—	—
Benzene	—	—	—	—
Benzo(a)pyrene	—	—	1.89E-06	—
Benzo(g,h,i)perylene	4.85E-10	—	—	—
Cadmium	—	—	—	—
Chrysene	—	—	—	—
Copper	NTD	—	—	—
Lead	—	—	—	—
Methapyrilene	—	—	—	—
Phenanthrene	—	—	3.77E-06	—
RDX	1.78E-03	—	—	3.10E-06
Thallium	—	—	—	—
TPH-Diesel	—	—	—	—
Cs-137	—	—	—	—
Ra-226	—	—	—	—
U-235	—	—	—	—
U-238	—	—	—	—
Total for Site	1.78E-03	—	5.67E-06	3.49E-06

NC not calculated

a. Groundwater concentrations of Cs-137 were extremely small (as calculated from the GW Screen model) and would have no effect on risk. Consequently, risk values from this exposure pathway were not calculated.

b. TPH-diesel was evaluated using the RBCA model (see section 8).

c. 4-Chloro-3-methylphenol was not included in the GW Screen, because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

d. 2-Pentanone was not included in the GW Screen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-7. Risk by inhalation of fugitive dust for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	1.24E-10	2.70E-09	1.23E-11	8.98E-10	2.12E-11	1.53E-11
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	NTD	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	3.57E-11	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	NTD	—	—	—	—	NTD	—
Antimony	—	—	—	—	—	—	—	—	—	NTD	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	4.02E-11	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	8.16E-10	—	1.76E-13	—	—	—	7.90E-13	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	NTD	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	6.28E-10	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	NTD	—
Lead	—	—	—	—	—	—	—	—	—	NTD	—
Methapyrilene	—	—	—	—	—	—	—	—	—	NTD	—
Phenanthrene	—	—	—	—	—	1.76E-13	—	—	—	4.43E-13	—
RDX	—	—	—	—	—	—	—	—	5.03E-12	4.65E-09	1.65E-10
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	NTD	—	—	—	—	—	—	—	NTD	—
Cs-137	3.38E-11	—	6.30E-12	5.41E-11	—	—	—	—	—	—	—
Ra-226	—	—	1.60E-09	—	—	—	—	—	—	—	—
U-235	2.08E-09	—	1.53E-09	2.41E-09	—	—	—	—	—	—	—
U-238	5.66E-09	—	3.54E-08	—	—	—	—	—	—	—	—
Total for Site	7.78E-09	4.02E-11	3.86E-08	3.90E-09	NC	1.26E-10	2.73E-09	1.23E-11	8.98E-10	4.68E-09	1.80E-10

NOTE: Blank cells indicate that this chemical was not a COPC at that site.

NTD indicates that no slope factors were available for the COPC.

NC = Not calculated, risk values could not be determined because slope or absorption factors were not available for COPCs at this site/area.

Table E1-8. Risk by inhalation of volatiles from soil for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
2,4,6-Trinitrotoluene	—	—	—	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	—	—	—	—
Arsenic	—	—	—	—
Benzene	6.01E-12	—	—	—
Benzo(a)pyrene	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—
Cadmium	—	—	—	—
Chrysene	—	—	—	7.00E-12
Copper	—	—	—	—
Lead	—	—	—	—
Methapyrilene	—	—	—	—
Phenanthrene	—	1.40E-14	1.96E-13	—
RDX	—	—	—	—
Thallium	—	—	—	—
TPH-Diesel	—	—	—	—
<u>Total for Site</u>	6.01E-12	1.40E-14	1.96E-13	7.00E-12

NOTE: Blank cells indicate that this chemical was not a COPC at this site or that no slope factors were available for the COPC.

Table E1-9. Risk by inhalation of volatiles from groundwater for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
2,4,6-Trinitrotoluene	—	—	—	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	—	—	—	—
Arsenic	—	—	—	—
Benzene	8.75E-08	—	—	—
Benzo(a)pyrene	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—
Cadmium	—	—	—	—
Chrysene	—	—	—	1.02E-07
Copper	—	—	—	—
Lead	—	—	—	—
Methapyrilene	—	—	—	—
Phenanthrene	—	5.58E-10	4.91E-09	—
RDX	—	—	—	—
Thallium	—	—	—	—
TPH-Diesel	*	—	*	—
Total for Site	8.75E-08	5.58E-10	4.91E-09	1.02E-07

NOTE: Blank cells indicate that this chemical was not a COPC at this site or that no slope factors were available for the COPC.

* See RBCA Model Results for further information on TPH-Diesel Risks at EBR and NODA.

Table E1-10. Risk by external radiation exposure for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
Cs-137	3.90E-05	—	7.28E-06	6.25E-05	—	—	—	—	—	—	—
Ra-226	—	—	4.14E-05	—	—	—	—	—	—	—	—
U-235	4.44E-07	—	3.26E-07	5.15E-07	—	—	—	—	—	—	—
U-238	7.24E-11	—	4.53E-10	0.00E+00	—	—	—	—	—	—	—
Total for Site	3.95E-05	—	4.90E-05	6.30E-05	—	—	—	—	—	—	—

NOTE: Blank cells indicate that this chemical was not a COPC at this site.

Table E1-11. Risk by dermal absorption of soil for the future residential scenario.

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	1.32E-06	2.87E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	NTD	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	3.85E-07	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	2.20E-05	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	1.30E-06	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	NTD	NTD	—	—	—	—	—	—
Total for Site	NC	NC	NC	NC	3.85E-07	NC	NC	NC	2.33E-05	NC	1.32E-06	2.87E-07

NOTE: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no slope factors were available for the COPC.

NC = Not calculated, risk values could not be determined because slope or absorption factors were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-11. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2
2,4,6-Trinitrotoluene	—	2.03E-05	2.37E-05	—	1.68E-03	—	1.81E-05	8.42E-06	2.74E-04	8.04E-05	9.19E-07
2-Amino-4, 6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	NTD
4-Amino-2, 6-Dinitrotoluene	—	—	3.14E-07	—	—	2.64E-08	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	NTD
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	9.27E-06	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	1.89E-08
Chrysene	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	2.14E-05	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	9.02E-09	2.14E-08	—	—	2.02E-05
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Total for Site	3.07E-05	2.03E-05	2.41E-05	0.00E+00	1.68E-03	2.64E-08	1.81E-05	8.44E-06	2.74E-04	8.04E-05	2.13E-05

Table E1-11. (continued).

COPCs	NODA		
	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	—	—	1.35E-07
2-Amino-4,6-Dinitrotoluene	—	—	—
2-Pentanone	NTD	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—
4-Chloro-3-methylphenol	—	—	—
Arsenic	—	—	—
Benzene	—	—	—
Benzo(a)pyrene	—	2.33E-05	—
Benzo(g,h,i)perylene	—	—	—
Chrysene	—	—	—
Methapyrilene	—	NTD	—
Phenanthrene	—	3.02E-05	—
RDX	—	—	1.45E-07
TPH-Diesel	—	NTD	—
Total for Site	NC	5.35E-05	2.80E-07

Table E1-12. Risk by dermal absorption of groundwater for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	3.40E-08	3.34E-09	4.31E-07	3.50E-07	1.46E-07	1.98E-09
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	3.99E-08	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	1.55E-08	—	1.61E-11	—	—	—	2.53E-10	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	1.38E-09	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	1.37E-09	—	—	—	1.21E-08	—
RDX	—	—	—	—	—	—	—	—	4.04E-09	3.36E-05	2.66E-08
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	7.51E-07	—	—	—	—	v	—	—
Total for Site	NC	3.99E-08	NC	7.67E-07	NC	3.54E-08	3.34E-09	4.31E-07	3.54E-07	3.38E-05	2.86E-08

NOTE: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no slope factors were available for the COPC.

NC = Not calculated, risk values could not be determined because slope or absorption factors were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-13. Total hazard quotients by site for the future residential scenario.

	Exposure Pathway							
	Ingestion of Soil	Ingestion of Groundwater	Ingestion of Homegrown Produce	Inhalation of Fugitive Dust	Inhalation of Volatiles from Soil	Inhalation of Volatiles from Groundwater	Dermal Absorption of Soil	Dermal Absorption of Groundwater
BORAX-01 ^a								
BORAX-02 ^a	—	—	—	—	—	—	—	—
BORAX-08 ^a	—	—	—	—	—	—	—	—
BORAX-09 ^a								
EBR-08	2E-03		3E-03				3E-05	
EBR-10	— ^b	4E-03	— ^c	2E-06	3E-07	4E-03	— ^b	5E-05
LCCDA-01 ^d	—	—	—	—	—	—	—	—
LCCDA-02 ^d	—	—	—	—	—	—	—	—
OMRE ^e	—	—	—	—	—	—	—	—
Burnring ^f	—	—	—	—	—	—	—	—
Firestation Area 1	2E-02		6E-01				5E-04	
Firestation Area 2	6E-03		2E-01				1E-04	
Firestation Area 3	— ^g	6E-01	— ^g	2E-05	— ^g	— ^g	— ^g	3E-04
Firestation Area 4	4E-01		8E+00				8E-03	
Fieldstation Area 1	4E-01	6E-02	9E+00	4E-04	—	—	9E-03	3E-05
Mine Fuze Area 2	—		—		—	—	—	
Mine Fuze Area 3	3E+01	8E+00	7E+02	2E-06	—	—	7E-01	3E-03
NOAA Area 2	5E-04		—		—	—	1E-05	
NOAA Area 2a	3E-01		8E+00		—	—	7E-03	
NOAA Area 3	2E-01	6E+00	5E+00	1E-04	—	—	3E-03	3E-03
NOAA Area 5	5E+00		1E+02		—	—	1E-01	
NOAA Area 6	2E+00		3E+01		—	—	3E-02	
NODA Area 2	2E-01	1E+02 ^j	1E+01	4E-05			8E-04	1E-02

NODA Area 3	<u>—</u> ^h	<u>—</u> ^h	<u>—</u> ^{h,i}	<u>—</u> ^{h,i}	<u>—</u> ^h
NODA Area 4	<u>—</u> ⁱ	<u>—</u> ⁱ			
CFA-633	4E-03	1E-01	8E-02	4E-06	—

NOTE: Lack of a risk value in this table indicates that no COPCs were present at the site/area to be evaluated for the specific pathway.

- a. COPCs at all BORAX sites included radionuclides only.
- b. Reference Doses (RfDs) are not available for TPH-diesel. Consequently, risk values from this exposure pathway were not calculated.
- c. TPH-diesel was evaluated using the RBCA model (see section 8).
- d. COPCs at LCCDA-01 and LCCDA-02 included radionuclides only.
- e. RfDs are not available for benzo(a)pyrene and chrysene. Consequently, risk values for all exposure pathways could not be calculated.
- f. RfDs are not available for 4-Chloro-3-methylphenol. Consequently, risk values for all exposure pathways could not be calculated. 4-Chloro-3-methylphenol was not included in the Gwscreen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.
- g. RfDs are not available for benzo(a)pyrene and phenanthrene. Consequently, risk values from this exposure pathway were not calculated.
- h. RfDs are not available for 2-pentanone. Consequently, risk values from this exposure pathway were not calculated.
- i. RfDs are not available for benzo(a)pyrene, methapyrilene, phenanthrene, and TPH-diesel. Consequently, risk values from this exposure pathway were not calculated.
- j. 2-Pentanone was not included in the GW Screen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-14. Total hazard quotients by area for the future residential scenario.

	Exposure Pathway							
	Ingestion of Soil	Ingestion of Groundwater	Ingestion of Homegrown Produce	Inhalation of Fugitive Dust	Inhalation of Volatiles from Soil	Inhalation of Volatiles from Groundwater	Dermal Absorption of Soil	Dermal Absorption of Groundwater
BORAX ^a	NC	NC	NC	NC			NC	NC
EBR	2.41E-03	3.90E-03	3.17E-03	2.03E-06	3.04E-07	4.42E-03	2.58E-05	5.36E-05
LCCDA ^b	NC	NC	NC	NC			NC	NC
OMRE ^c	NC	NC	NC	NC	NC	NC	NC	NC
Burnring ^d	NC	NC	NC	NC			NC	NC
Firestation	3.99E-01	6.23E-01	8.85E+00	1.95E-05	NC	NC	8.53E-03	2.65E-04
Fieldstation	4.38E-01	6.11E-02	9.19E+00	4.25E-04			9.35E-03	2.60E-05
Mine Fuze	3.06E+01	7.89E+00	6.51E+02	1.92E-06			6.53E-01	3.35E-03
NOAA	7.19E+00	6.41E+00	2E+02	1.43E-04			2E-01	2.72E-03
NODA	2.02E-01	1.46E+02 ^e	1.39E+01	3.70E-05	NC	NC	8.02E-04	1.30E-02
CFA-633	3.65E-03	1.11E-01	8.13E-02	3.54E-06			5.49E-05	2.48E-05

NOTE: Lack of a risk value in this table indicates that no COPCs were present at the site/area to be evaluated for the specific pathway.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

a. COPCs at all BORAX sites included radionuclides only.

b. COPCs at LCCDA-01 and LCCDA-02 included radionuclides only.

c. RfDs are not available for benzo(a)pyrene and chrysene. Consequently, risk values for all exposure pathways could not be calculated.

d. RfDs are not available for 4-Chloro-3-methylphenol. Consequently, risk values for all exposure pathways could not be calculated. 4-Chloro-3-methylphenol was not included in the GWScreen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.e. 2-Pentanone was not included in the Gwscreen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-15. Total hazard quotients at each site/group for the future residential scenario.

	Total HQ
BORAX	
EBR	1.40E-02 ^a
LCCDA	^b
OMRE	^c
Burnring	^d
Firestation	9.88E+00
Fieldstation	9.70E+00
Mine Fuze	6.90E+02
NOAA	1.66E+02
NODA	1.60E+02
CFA-633	1.96E-01

a. COPCs at all BORAX sites included radionuclides only.

b. COPCs at LCCDA-01 and LCCDA-02 included radionuclides only.

c. RfDs are not available for benzo(a)pyrene and chrysene. Consequently, risk values could not be calculated.

d. RfDs are not available for 4-Chloro-3-methylphenol. Consequently, risk values for all exposure pathways could not be calculated. 4-Chloro-3-methylphenol was not included in the GW Screen because of the lack of a soil-water partition coefficient (Kd) for this contaminant.

Table E1-16. Hazard quotients by ingestion of soil for the future residential scenario.

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	2.40E-02	5.22E-03
2-Amino-4, 6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2, 6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3- methylphenol	—	—	—	—	—	—	—	—	—	NTD	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	2.41E-03	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	NTD	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	NTD	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	NTD	NTD	—	—	—	—	—	—
Total for Site	NC	NC	NC	NC	2.41E-03	NC	NC	NC	NC	NC	2.40E-02	5.22E-03

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfDs were available for the COPC.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-16. (continued).

COPCs	Firestation			Fieldstation			Mine Fuze			NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2	Area 3	NTD	NTD
2,4,6-Trinitrotoluene	—	3.70E-01	4.32E-01	—	3.06E+01	—	3.29E-01	1.53E-01	4.99E+00	1.46E+00	1.67E-02	—	—	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	NTD	NTD	—
4-Amino-2,6-Dinitrotoluene	—	—	5.72E-03	—	—	4.80E-04	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	NTD	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	5.79E-03	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	NTD	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	NTD	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	5.56E-03	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	NTD	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	NTD	—	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	7.46E-05	1.77E-04	—	—	—	1.67E-01	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total for Site	NC	3.70E-01	4.38E-01	NC	3.06E+01	4.80E-04	3.29E-01	1.53E-01	4.99E+00	1.46E+00	1.99E-01	NC	—	—

Table E1-16. (continued).

COPCs	NODA		CFA-633
	Area 4	Area 4	
2,4,6-Trinitrotoluene	—	—	2.45E-03
2-Amino-4, 6-Dinitrotoluene	—	—	—
2-Pentanone	—	—	—
4-Amino-2, 6-Dinitrotoluene	—	—	—
4-Chloro-3-methylphenol	—	—	—
Antimony	—	—	—
Arsenic	—	—	—
Benzene	—	—	NTD
Benzo(a)pyrene	—	—	—
Benzo(g,h,i)perylene	—	—	—
Cadmium	—	—	—
Chrysene	—	—	—
Copper	—	—	—
Lead	—	—	—
Methapyrilenes	—	—	NTD
Phenanthrene	—	—	NTD
RDX	—	—	1.20E-03
Thallium	—	—	—
TPH-Diesel	—	—	NTD
Total for Site	NC	3.65E-03	—

Table E1-17. Hazard quotients by groundwater ingestion for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	6.23E-01	6.11E-02	7.89E+00	6.40E+00	2.66E+00	3.63E-02
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	NTD	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	3.58E-02	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	3.90E-03	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	NTD	—	NTD	—	—	—	NTD	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	NTD	—
Cadmium	—	—	—	—	—	—	—	—	—	1.83E+00	—
Copper	—	—	—	—	—	—	—	—	—	1.06E-01	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	NTD	—	—	—	NTD	—
RDX	—	—	—	—	—	—	—	—	1.14E-02	9.50E+01	7.51E-02
Thallium	—	—	—	—	—	—	—	—	—	4.65E+01	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	NTD	—	—	—	—	—	—	—
Total for Site	NC	3.90E-03	NC	NC	NC	6.23E-01	6.11E-02	7.89E+00	6.41E+00	1.46E+02	1.11E-01

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfDs were available for the COPC.

See RBCA Model Results for further information on TPH-Diesel HQs at EBR and NODA.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-18. Hazard quotients by ingestion of homegrown produce for the future residential scenario.

COPCs	BORAX-01	BORAX-	BORAX-	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
		02	09							Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	6.35E-01	2.37E-01
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	3.17E-03	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	NTD	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	NTD	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Total for Site	NC	NC	NC	NC	3.17E-03	NC	NC	NC	NC	6.35E-01	2.37E-01

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfDs were available for the COPC.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-18. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2
2,4,6-Trinitrotoluene	—	7.98E+00	9.19E+00	—	6.51E+02	—	8.28E+00	4.55E+00	1.07E+02	3.24E+01	8.93E-01
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	1.07E-04
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	NTD	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	NTD
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	4.77E-01
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	NTD	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	2.12E-03	3.28E-03	—	—	1.26E+01
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Total for Site	NC	7.98E+00	9.19E+00	NC	6.51E+02	0.00E+00	8.29E+00	4.55E+00	1.07E+02	3.24E+01	1.39E+01

Table E1-1B. (continued).

COPCs	NODA			CFA-633
	Area 3	Area 4	Area 4	
2,4,6-Trinitrotoluene	—	—	—	5.93E-02
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	—	—	—	—
Arsenic	—	—	—	—
Benzene	—	—	—	—
Benzo(a)pyrene	—	—	NTD	—
Benzo(g,h,i)perylene	—	—	—	—
Cadmium	—	—	—	—
Chrysene	—	—	—	—
Copper	—	—	—	—
Lead	—	—	—	—
Methapyriline	—	—	—	—
Phenanthrene	—	—	NTD	—
RDX	—	—	—	2.19E-02
Thallium	—	—	—	—
TPH-Diesel	—	—	—	—
Total for Site	NC	NC	NC	8.13E-02

Table E1-19. Hazard quotients by inhalation of fugitive dust for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	1.94E-05	4.19E-04	1.92E-06	1.40E-04	3.29E-06	2.38E-06
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	NTD	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	5.55E-06	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	NTD	—	—	—	—	NTD	—
Antimony	—	—	—	—	—	—	—	—	—	NTD	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	2.03E-06	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	NTD	—	NTD	—	—	—	NTD	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	NTD	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	NTD	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	NTD	—
Lead	—	—	—	—	—	—	—	—	—	NTD	—
Methapyrilene	—	—	—	—	—	—	—	—	—	NTD	—
Phenanthrene	—	—	—	—	—	NTD	—	—	—	NTD	—
RDX	—	—	—	—	—	—	—	—	3.55E-08	3.29E-05	1.17E-06
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	NTD	—	—	—	—	—	—	—	NTD	—
Total for Site	NC	2.03E-06	NC	NC	NC	1.95E-05	4.25E-04	1.92E-06	1.43E-04	3.70E-05	3.54E-06

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfDs were available for the COPC

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-20. Hazard quotients by inhalation of volatiles from soil for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
2,4,6-Trinitrotoluene	—	—	—	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	—	—	—	—
Arsenic	—	—	—	—
Benzene	3.04E-07	—	—	—
Benzo(a)pyrene	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—
Cadmium	—	—	—	—
Chrysene	—	—	—	NTD
Copper	—	—	—	—
Lead	—	—	—	—
Methapyrilene	—	—	—	—
Phenanthrene	—	NTD	NTD	—
RDX	—	—	—	—
Thallium	—	—	—	—
TPH-Diesel	—	—	—	—
Total for Site	3.04E-07	NC	NC	NC

Notes: Blank cells indicate that this chemical was not a COPC at this site or that no RfDs were available for the COPC.

NTD indicates that no RfDs were available for the COPC.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-21. Hazard quotients by inhalation of volatiles from groundwater for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
2,4,6-Trinitrotoluene	—	—	—	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	—	—	—	—
Arsenic	—	—	—	—
Benzene	4.42E-03	—	—	—
Benzo(a)pyrene	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—
Cadmium	—	—	—	—
Chrysene	—	—	—	NTD
Copper	—	—	—	—
Lead	—	—	—	—
Methapyrilene	—	—	—	—
Phenanthrene	—	NTD	NTD	—
RDX	—	—	—	—
Thallium	—	—	—	—
TPH-Diesel	*	—	*	—
Total for Site	4.42E-03	NC	NC	NC

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfD exists for this COPC.

*See RBCA Model Results for further information on TPH-Diesel HQs at EBR and NODA.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-22. Hazard quotients by dermal absorption of soil for the future residential scenario.

COPCs	BORAX-01							LCCDA-02	OMRE	Burnring	Firestation	
		BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01				Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	5.13E-04	1.12E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	NTD	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	2.58E-05	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	NTD	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	NTD	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	NTD	NTD	—	—	—	—	—	—
Total for Site	NC	NC	NC	NC	2.58E-05	NC	NC	NC	NC	NC	5.13E-04	1.12E-04

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfDs were available for the COPC.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-22. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2
2,4,6-Trinitrotoluene	—	7.90E-03	9.23E-03	—	6.53E-01	—	7.03E-03	3.27E-03	1.07E-01	3.13E-02	3.57E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	NTD
4-Amino-2,6-Dinitrotoluene	—	—	1.22E-04	—	—	1.03E-05	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	NTD
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	NTD	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	NTD
Chrysene	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	1.59E-07	3.79E-07	—	—	3.57E-04
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Total for Site	NC	7.90E-03	9.35E-03	NC	6.53E-01	1.03E-05	7.04E-03	3.27E-03	1.82E-01	3.13E-02	7.142E-04

Table E1-22. (continued).

COPCs	NODA			CFA-633
	Area 3	Area 4		
2,4,6-Trinitrotoluene	—	—	—	5.23E-05
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	NTD	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Arsenic	—	—	—	—
Benzene	—	—	—	—
Benzo(a)pyrene	—	NTD	—	—
Benzo(g,h,i)perylene	—	—	—	—
Chrysene	—	—	—	—
Methapyrilene	—	NTD	—	—
Phenanthrene	—	NTD	—	—
RDX	—	—	2.57E-06	—
TPH-Diesel	—	NTD	—	—
Total for Site	NC	NC	5.49E-05	—

Table E1-23. Hazard quotients by dermal absorption of groundwater for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	2.65E-04	2.60E-05	3.35E-03	2.72E-03	1.13E-03	1.54E-05
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	5.36E-05	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	NTD	—	NTD	—	—	—	NTD	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	NTD	—
Chrysene	—	—	—	NTD	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	NTD	—	—	—	NTD	—
RDX	—	—	—	—	—	—	—	—	1.43E-06	1.19E-02	9.39E-06
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Total for Site	NC	5.36E-05	NC	NC	NC	2.65E-04	2.60E-05	3.35E-03	2.72E-03	1.30E-02	2.48E-05

Notes: Blank cells indicate that this chemical was not a COPC at this site.

NTD indicates that no RfDs were available for the COPC.

NC = Not calculated, risk values could not be determined because RfDs were not available for COPCs at this site/area or COPCs were comprised of radionuclides only.

Table E1-23. (continued).

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	5.14E-06	1.12E-06
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	1.21E-07	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	3.10E-06	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	2.71E-07	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	2.08E-04	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	7.07E-02	1.47E-02	—	—	—	—	—	—
Cs-137	3.62E+03	8.15E+01	4.99E+02	6.65E+00	—	—	3.18E+02	—	1.31E+03	—	—	—
Ra-226	—	—	—	—	—	—	4.19E+02	1.32E+02	—	—	—	—
U-235	3.97E+02	9.89E+01	—	—	—	—	1.13E+02	—	8.58E+01	—	—	—
U-238	1.53E+03	—	—	—	—	—	2.76E+03	—	—	—	—	—

Note: A blank cell indicates that this COPCs is not a chemical of concern at this site.

Table E1-23. (continued).

COPCs	Firestation				Fieldstation				Mine Fuze				NOAA		
	Area 1	Area 2	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6			
2,4,6-Trinitrotoluene	5.14E-06	1.12E-06	—	7.92E-05	9.25E-05	—	6.55E-03	—	7.05E-05	3.28E-05	1.07E-03	3.13E-04	—	—	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	9.84E-08	—	—	—	—	—	—	1.03E-07	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	1.14E-07	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	1.14E-07	—	—	—	—	—	—	—	—	—	9.59E-08	2.28E-07	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table E1-23. (continued).

COPCs	NODA				CFA-633
	Area 2	Area 3	Area 4	CFA-633	
2,4,6-Trinitrotoluene	3.58E-06	—	—	—	5.25E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—
2-Pentanone	4.16E-06	3.97E-06	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—
4-Chloro-3-methylphenol	3.21E-07	—	—	—	—
Antimony	9.93E-07	—	—	—	—
Arsenic	—	—	—	—	—
Benzene	—	—	—	—	—
Benzo(a)pyrene	—	—	2.87E-07	—	—
Benzo(g,h,i)perylene	3.03E-07	—	—	—	—
Cadmium	—	—	—	—	—
Chrysene	—	—	—	—	—
Copper	8.85E-05	—	—	—	—
Lead	4.19E-05	—	—	—	—
Methaphyrrlene	—	—	3.44E-07	—	—
Phenanthenrene	—	—	1.61E-07	—	—
RDX	2.14E-04	—	—	1.54E-06	—
Thallium	—	—	—	—	—
TPH-Diesel	—	—	3.32E-04	—	—
Cs-137	—	—	—	—	—
Ra-226	—	—	—	—	—
U-235	—	—	—	—	—
U-238	—	—	—	—	—

Table E1-27. Intake, ingestion of soil, noncarcinogen (mg/kg-day) for the future residential scenario.

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	1.20E-05	2.61E-06
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	2.82E-07	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	7.24E-06	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	6.32E-07	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	4.86E-04	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
<u>TPH-Diesel</u>	—	—	—	—	1.65E-01	3.43E-02	—	—	—	—	—	—

Note: A blank cell indicates that this COPCs is not a chemical of concern at this site.

Table E1-27. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6
2,4,6-Trinitrotoluene	—	1.85E-04	2.16E-04	—	1.53E-02	—	1.65E-04	7.66E-05	2.50E-03	7.31E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	2.86E-06	—	—	2.40E-07	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	2.67E-07	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—
Phenanthrene	2.67E-07	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	2.24E-07	5.32E-07	—	—
Thallium	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—

Table E1-27. (continued).

COPCs	NODA				CFA-633
	Area 2	Area 3	Area 4		
2,4,6-Trinitrotoluene	8.36E-06	—	—	—	1.22E-06
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—
2-Pentanone	9.71E-06	9.26E-06	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—
4-Chloro-3-methylphenol	7.50E-07	—	—	—	—
Antimony	2.32E-06	—	—	—	—
Arsenic	—	—	—	—	—
Benzene	—	—	—	—	—
Benzo(a)pyrene	—	—	6.70E-07	—	—
Benzo(g,h,i)perylene	7.07E-07	—	—	—	—
Cadmium	—	—	—	—	—
Chrysene	—	—	—	—	—
Copper	3.17E-04	—	—	—	—
Lead	9.78E-05	—	—	—	—
Methapyrilene	—	—	8.04E-07	—	—
Phenanthrene	—	—	3.76E-07	—	—
RDX	5.00E-04	—	—	3.60E-06	—
Thallium	—	—	—	—	—
TPH-Diesel	—	—	7.75E-04	—	—

Table E1-28. Intake, ingestion of groundwater, carcinogens (mg/kg-day or pci/kg-day) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	1.33E-04	1.31E-05	1.69E-03	1.37E-03	5.71E-04	7.78E-06
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	6.13E-06	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	5.01E-06	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	7.08E-10	—	7.35E-13	—	—	—	1.15E-11	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	4.65E-08	—
Cadmium	—	—	—	—	—	—	—	—	—	3.93E-04	—
Chrysene	—	—	—	5.08E-05	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	1.69E-03	—
Lead	—	—	—	5.72E-03	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	2.78E-10	—	—	—	2.45E-09	—
RDX	—	—	—	—	—	—	—	—	1.47E-05	1.22E-01	9.66E-05
Thallium	—	—	—	—	—	—	—	—	—	1.40E-03	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	4.71E-07	1.17E-05	—	—	—	—	—	—	—
U-235	2.36E-04	—	5.96E-06	3.48E-04	—	—	—	—	—	—	—
U-238	9.77E-04	—	1.41E-04	—	—	—	—	—	—	—	—

Table E1-29. Intake, ingestion of groundwater, noncarcinogens (mg/kg-day) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	3.11E-04	3.06E-05	3.94E-03	3.20E-03	1.33E-03	1.81E-05
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	1.43E-05	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	1.17E-05	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	1.65E-09	—	1.71E-12	—	—	—	2.69E-11	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	1.09E-07	—
Cadmium	—	—	—	—	—	—	—	—	—	9.17E-04	—
Chrysene	—	—	—	1.19E-04	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	3.94E-03	—
Lead	—	—	—	1.33E-02	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	6.49E-10	—	—	—	5.71E-09	—
RDX	—	—	—	—	—	—	—	—	3.43E-05	2.85E-01	2.25E-04
Thallium	—	—	—	—	—	—	—	—	—	3.26E-03	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—

Table E1-30. Alpha, for volatilization factor (cm²/s) for the future residential scenario.

COPCs	Alpha
Benzene	1.12E-02
Phenanthrene	2.27E-06
<u>Chrysene</u>	4.19E-07

Note: Just for volatile COPCs.

Table E1-31. Effective diffusivity (cm²/s) for the future residential scenario.

COPCs	Dei
Benzene	6.22E-02
Phenanthrene	4.10E-02
<u>Chrysene</u>	1.75E-02

Note: Just for volatile COPCs.

Table E1-32. Soil/air partition coefficient for volatile COPCs for the future residential scenario.

COPCs	Kas
Benzene	6.12E-01
Phenanthrene	1.54E-04
<u>Chrysene</u>	6.66E-05

Note: Just for volatile COPCs.

Table E1-33. Volatilization factor for volatile COPCs (m³/kg) for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
Benzene	5.15E+08	—	—	—
Phenanthrene	—	9.69E+08	1.74E+08	—
<u>Chrysene</u>	—	—	—	6.89E+09

Note: Just for volatile COPCs.

Table E1-34. Area weighted average airborne volatile concentration (mg/m^3) for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
Benzene	1.82E-09	—	—	—
Phenanthrene	—	3.70E-14	5.18E-13	—
Chrysene	—	—	—	1.85E-08

Notes: A blank cell indicates that the COPC was not a chemical of concern at this site.

Table E1-35. Airborne contaminant concentrations, fugitive dust (mg/m³ or pCi/m³) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	3.40E-08	7.37E-07	3.37E-09	2.45E-07	5.79E-09	4.18E-09
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	3.19E-08	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	9.76E-09	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	9.62E-10	—	—	—	—	5.19E-10	—
Antimony	—	—	—	—	—	—	—	—	—	1.61E-09	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	1.22E-08	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	2.16E-09	—	4.66E-13	—	—	—	2.09E-12	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	4.90E-10	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	1.66E-06	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	2.19E-07	—
Lead	—	—	—	—	—	—	—	—	—	6.77E-08	—
Methapyrilene	—	—	—	—	—	—	—	—	—	2.51E-12	—
Phenanthrene	—	—	—	—	—	4.66E-13	—	—	—	1.17E-12	—
RDX	—	—	—	—	—	—	—	—	3.75E-10	3.46E-07	1.23E-08
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	3.38E-04	—	—	—	—	—	—	—	2.42E-09	—
Cs-137	8.45E-06	—	1.58E-06	1.35E-05	—	—	—	—	—	—	—
Ra-226	—	—	2.78E-06	—	—	—	—	—	—	—	—
U-235	7.64E-07	—	5.61E-07	8.85E-07	—	—	—	—	—	—	—
U-238	2.18E-06	—	1.37E-05	—	—	—	—	—	—	—	—

Notes: Blank cells indicate that this COPC was not a chemical of concern at this site.

Table E1-36. Intake, fugitive dust, noncarcinogens (mg/kg-day) for the future residential scenario.

	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	9.68E-09	2.10E-07	9.58E-10	6.98E-08	1.65E-09	1.19E-09
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	9.07E-09	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	2.78E-09	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	2.74E-10	—	—	—	—	1.48E-10	—
Antimony	—	—	—	—	—	—	—	—	—	4.57E-10	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	3.48E-09	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	6.14E-10	—	1.33E-13	—	—	—	5.95E-13	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	1.39E-10	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	4.72E-07	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	6.24E-08	—
Lead	—	—	—	—	—	—	—	—	—	1.93E-08	—
Methapyrilene	—	—	—	—	—	—	—	—	—	7.13E-13	—
Phenanthrene	—	—	—	—	—	1.33E-13	—	—	—	3.34E-13	3.50E-09
RDX	—	—	—	—	—	—	—	—	1.07E-10	9.86E-08	—
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	9.61E-05	—	—	—	—	—	—	—	6.88E-10	—

Notes: Blank cells indicate that this COPC was not a chemical of concern at this site.

Table E1-37. Intake, fugitive dust, carcinogens (mg/kg-day or pCi/kg-day) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	4.15E-09	8.99E-08	4.11E-10	2.99E-08	7.06E-10	5.09E-10
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	3.89E-09	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	1.19E-09	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	1.17E-10	—	—	—	—	6.33E-11	—
Antimony	—	—	—	—	—	—	—	—	—	1.96E-10	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	1.49E-09	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	2.63E-10	—	5.69E-14	—	—	—	2.55E-13	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	5.97E-11	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	2.02E-07	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	2.67E-08	—
Lead	—	—	—	—	—	—	—	—	—	8.26E-09	—
Methapyrilene	—	—	—	—	—	—	—	—	—	3.06E-13	—
Phenanthrene	—	—	—	—	—	5.69E-14	—	—	—	1.43E-13	—
RDX	—	—	—	—	—	—	—	—	4.57E-11	4.23E-08	1.50E-09
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	4.12E-05	—	—	—	—	—	—	—	2.95E-10	—
Cs-137	1.77E+00	—	3.30E-01	2.83E+00	—	—	—	—	—	—	—
Ra-226	—	—	5.82E-01	—	—	—	—	—	—	—	—
U-235	1.60E-01	—	1.17E-01	1.85E-01	—	—	—	—	—	—	—
U-238	4.57E-01	—	2.86E+00	—	—	—	—	—	—	—	—

Notes: Blank cells indicate that this COPC was not a chemical of concern at this site.

Table E1-38. Intake, volatile inhalation, soil, carcinogenic (mg/kg-day) for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
Benzene	2.22E-10	—	—	—
Phenanthrene	—	4.51E-15	6.32E-14	—
<u>Chrysene</u>	—	—	—	2.26E-09

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site.

Table E1-39. Intake, volatile inhalation, soil, noncarcinogenic (mg/kg-day) for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
Benzene	5.19E-10	—	—	—
Phenanthrene	—	1.05E-14	1.47E-13	—
<u>Chrysene</u>	—	—	—	5.27E-09

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site.

Table E1-40. Intake, volatile inhalation, groundwater, carcinogenic (mg/kg-day) for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
Benzene	3.24E-06	—	—	—
Phenanthrene	—	1.80E-10	1.59E-09	—
<u>Chrysene</u>	—	—	—	3.29E-05

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site.

Table E1-41. Intake, volatile inhalation, groundwater, noncarcinogenic, (mg/kg-day) for the future residential scenario.

COPCs	EBR	Firestation	NODA	OMRE
Benzene	7.57E-06	—	—	—
Phenanthrene	—	4.20E-10	3.70E-09	—
<u>Chrysene</u>	—	—	—	7.68E-05

Table E1-42. Exposures due to external radiation, carcinogenic (pCi-yr/g), based on area weighted average soil concentrations (0–10 ft) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Craters	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
Cs-137	1.87E+01	—	3.48E+00	2.99E+01	—	—	—	—	—	—	—	—
Ra-226	—	—	6.15E+00	—	—	—	—	—	—	—	—	—
U-235	1.69E+00	—	1.24E+00	1.96E+00	—	—	—	—	—	—	—	—
U-238	4.83E+00	—	3.02E+01	—	—	—	—	—	—	—	—	—

Table E1-43. Intake, dermal absorption of soil, carcinogenic (mg/kg-day) for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation			
											Area 1	Area 2	Area 3	Area 4
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	2.20E-06	4.78E-07	—	3.39E-05
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	5.16E-08	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	6.63E-07	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	1.51E-07	—	—	6.35E-08	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	8.91E-06	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	1.47E-07	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	3.02E-02	6.28E-03	—	—	—	—	—	—	—	—

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site or that no absorption factor were available for this chemical.

Table E1-43. (continued).

COPCs	Fieldstation		Mine Fuze		NOAA				NCDIA			
	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	3.96E-05	—	2.80E-03	—	3.01E-05	1.40E-05	4.57E-04	1.34E-04	1.53E-06	—	—	2.24E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	1.78E-06	1.70E-06	—	—
4-Amino-2,6-Dinitrotoluene	5.24E-07	—	—	4.40E-08	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	1.37E-07	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	—	1.60E-07	—
Benzog.h.iperylene	—	—	—	—	—	—	—	—	1.30E-07	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrillene	—	—	—	—	—	—	—	—	—	—	1.47E-07	—
Phanthrene	—	—	—	—	—	—	—	—	—	—	2.07E-07	—
RDX	—	—	—	—	4.10E-09	9.74E-09	—	—	9.17E-06	—	—	6.60E-08
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	1.42E-04	—

Table E1-44. Intake, dermal absorption of soil, noncarcinogenic (mg/kg-day) for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation			
											Area 1	Area 2	Area 3	Area 4
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	5.13E-06	1.12E-06	—	7.90E-05
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	1.21E-07	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	1.55E-06	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	—	—	—	1.48E-07	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—	3.42E-07	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site or that no absorption factor were availableexists for this chemical.

Table E1-44. (continued).

COPCs	Fieldstation			Mine Fuze			NOAA			NODA		
	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	9.23E-05	—	6.53E-03	—	7.03E-05	3.27E-05	1.07E-03	3.13E-04	3.57E-06	—	—	5.23E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	4.15E-06	3.96E-06	—	—
4-Amino-2,6-Dinitrotoluene	1.22E-06	—	—	1.03E-07	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	3.21E-07	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	—	—	3.73E-07	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	3.02E-07	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—	—
Methaphenylene	—	—	—	—	—	—	—	—	—	—	3.44E-07	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	4.82E-07	—
RDX	—	—	—	—	9.57E-09	2.27E-08	—	—	2.14E-05	—	—	1.54E-07
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	3.31E-04	—

Table E1-45. Intake, dermal absorption of groundwater, carcinogenic for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	1.13E-06	1.11E-07	1.44E-05	1.17E-05	4.85E-06	6.61E-08
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	1.38E-06	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	2.12E-09	—	2.20E-12	—	—	—	3.46E-11	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	1.88E-07	—
Chrysene	—	—	—	1.03E-04	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	1.88E-10	—	—	—	1.65E-09	—
RDX	—	—	—	—	—	—	—	—	3.67E-08	3.06E-04	2.42E-07
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site or that no absorption factor were available for this chemical.

Table E1-46. Intake, dermal absorption of groundwater, noncarcinogenic for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burning	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	2.65E-06	2.60E-07	3.35E-05	2.72E-05	1.13E-05	1.54E-07
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	3.21E-06	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	4.95E-09	—	5.14E-12	—	—	—	—	8.08E-11	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	4.40E-07	—
Chrysene	—	—	2.40E-04	—	—	—	—	—	—	—	—
Methaphylenlene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	4.38E-10	—	—	—	—	3.86E-09	—
RDX	—	—	—	—	—	—	—	—	8.57E-08	7.13E-04	5.64E-07
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—

Notes: A blank cell indicates that this COPC was not a chemical of concern at this site or that no absorption factor were available for this chemical.

Table E1-47. Radioactive decay constants, lambda for the future residential scenario.

COPCs	λ (day ⁻¹)
Cs-137	6.29E-05
Ra-226	1.19E-06
U-235	2.70E-12
U-238	4.25E-13

Table E1-48. Leach rate constant for the future residential scenario.

COPCs	Li (day ⁻¹)
2,4,6-Trinitrotoluene	1.39E-03
2-Amino-4,6-Dinitrotoluene	2.83E-02
2-Pentanone	2.83E-02
4-Amino-2,6-Dinitrotoluene	2.83E-02
4-Chloro-3-methylphenol	2.83E-02
Antimony	1.54E-04
Arsenic	2.36E-03
Benzene	1.20E-02
Benzo(a)pyrene	4.69E-07
Benzo(g,h,i)perylene	1.61E-06
Cadmium	1.23E-03
Chrysene	3.24E-06
Copper	1.81E-05
Lead	7.72E-05
Methapyrilene	2.83E-02
Phenanthrene	1.82E-04
RDX	6.08E-03
Thallium	2.83E-02
TPH-Diesel	3.77E-03
Cs-137	1.55E-05
Ra-226	7.72E-05
U-235	1.23E-03
U-238	1.23E-03

Note: Blank cells indicate that no Kd value was available for this chemical.

Table E1-49. Irrigation COPC input rate (mg/g-day or pCi/g-day) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	7.59E-08	7.45E-09	9.61E-07	7.80E-07	3.24E-07	4.42E-09
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	3.49E-09	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	2.85E-09	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	4.02E-13	—	4.18E-16	—	—	—	6.56E-15	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	2.65E-11	—
Cadmium	—	—	—	—	—	—	—	—	—	2.23E-07	—
Copper	—	—	—	—	—	—	—	—	—	9.61E-07	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	1.58E-13	—	—	—	1.39E-12	—
RDX	—	—	—	—	—	—	—	—	8.35E-09	6.95E-05	5.49E-08
Thallium	—	—	—	—	—	—	—	—	—	7.94E-07	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	2.68E-10	6.66E-09	—	—	—	—	—	—	—
U-235	1.34E-07	—	3.39E-09	1.98E-07	—	—	—	—	—	—	—
U-238	5.56E-07	—	8.01E-08	—	—	—	—	—	—	—	—
Chrysene	—	—	—	2.89E-08	—	—	—	—	—	—	—

Notes: A blank cell indicates that this contaminant was not a COPC at this site.

Table E1-50. Average soil concentrations when irrigating with groundwater for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	2.58E-01	9.61E-02
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	1.47E-02	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	1.66E-01	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	1.26E+02	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	5.88E-06	5.35E-06	—	—	—	—
U-235	1.11E-04	1.11E-04	—	—	—	—	2.77E-06	—	1.61E-04	—	—	—
U-238	4.91E-04	—	—	—	—	—	7.54E-05	—	—	—	—	—

Notes: A blank cell indicates that this contaminant was not a COPC at this site.

Table E1-50. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2
2,4,6-Trinitrotoluene	—	3.24E+00	3.73E+00	—	2.64E+02	—	3.37E+00	1.85E+00	4.36E+01	1.32E+01	3.63E-01
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	3.06E-01
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	6.98E-02	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	1.84E-01
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	5.41E+01
Chrysene	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	3.04E-02	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	2.24E-03	3.45E-03	—	—	1.32E+01
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—	—	—

Table E1-50. (continued).

COPCs	NODA		
	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	—	—	2.41E-02
2-Amino-4,6-Dinitrotoluene	—	—	—
2-Pentanone	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—
4-Chloro-3-methylphenol	—	—	—
Antimony	—	—	—
Arsenic	—	—	—
Benzene	—	—	—
Benzo(a)pyrene	—	1.76E-01	—
Benzo(g,h,i)perylene	—	—	—
Cadmium	—	—	—
Copper	—	—	—
Chrysene	—	—	—
Lead	—	—	—
Methapyriline	—	—	—
Phenanthrene	—	4.28E-02	—
RDX	—	—	2.31E-02
Thallium	—	—	—
TPH-Diesel	—	—	—
Cs-137	—	—	—
Ra-226	—	—	—
U-235	—	—	—
U-238	—	—	—

Table E1-51. Average concentration of COPC in homegrown produce (HGP) from plant uptake (mg/kg or pCi/g) for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	Area 1
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	1.15E+00
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	3.44E-02	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	2.07E-03	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	2.39E+00	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	5.88E-07	5.35E-07	—	—	—	—
U-235	1.56E-06	1.55E-06	—	—	—	—	3.87E-08	—	2.25E-06	—	—	—
U-238	6.87E-06	—	—	—	—	—	1.06E-06	—	—	—	—	—

Notes: A blank cell indicates that this contaminant was not a COPC at this site.

Table E1-51. (continued).

COPCs	Firestation			Fieldstatio n		Mine Fuze			NOAA			
	Area 2	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	
2,4,6-Trinitrotoluene	4.28E-01	—	1.45E+01	1.66E+01	—	1.18E+03	—	1.50E+01	8.23E+00	1.94E+02	5.87E+01	
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	
Antimony	—	—	—	—	—	—	—	—	—	—	—	
Arsenic	—	—	—	—	—	—	—	—	—	—	—	
Benzene	—	—	—	—	—	—	—	—	—	—	—	
Benzo(a)pyrene	—	8.73E-04	—	—	—	—	—	—	—	—	—	
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	
Cadmium	—	—	—	—	—	—	—	—	—	—	—	
Chrysene	—	—	—	—	—	—	—	—	—	—	—	
Copper	—	—	—	—	—	—	—	—	—	—	—	
Lead	—	—	—	—	—	—	—	—	—	—	—	
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	
Phenanthrene	—	3.10E-03	—	—	—	—	—	—	—	—	—	
RDX	—	—	—	—	—	—	—	2.31E-02	3.56E-02	—	—	
Thallium	—	—	—	—	—	—	—	—	—	—	—	
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	
Cs-137	—	—	—	—	—	—	—	—	—	—	—	
Ra-226	—	—	—	—	—	—	—	—	—	—	—	
U-235	—	—	—	—	—	—	—	—	—	—	—	
U-238	—	—	—	—	—	—	—	—	—	—	—	

Table E1-51. (continued).

COPCs	NODA			
	Area 2	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	1.62E+00	—	—	1.08E-01
2-Amino-4,6-Dinitrotoluene	—	—	—	—
2-Pentanone	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—
Antimony	1.55E-04	—	—	—
Arsenic	—	—	—	—
Benzene	—	—	—	—
Benzo(a)pyrene	—	—	2.19E-03	—
Benzo(g,h,i)perylene	5.62E-04	—	—	—
Cadmium	—	—	—	—
Copper	4.33E+01	—	—	—
Chrysene	—	—	—	—
Lead	—	—	—	—
Methapyrilene	—	—	—	—
Phenanthrene	—	—	4.37E-03	—
RDX	1.37E+02	—	—	2.39E-01
Thallium	—	—	—	—
TPH-Diesel	—	—	—	—
Cs-137	—	—	—	—
Ra-226	—	—	—	—
U-235	—	—	—	—
U-238	—	—	—	—

Table E1-52. Intake, homegrown produce, carcinogenic (mg/kg-day or pCi/day) for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	1.36E-04	5.07E-05
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	4.07E-06	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	2.45E-07	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	2.82E-04	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	4.21E-06	3.83E-06	—	—	—	—
U-235	1.12E-05	1.11E-05	—	—	—	—	2.77E-07	—	1.61E-05	—	—	—
U-238	4.92E-05	—	—	—	—	—	7.56E-06	—	—	—	—	—

Notes: A blank cell indicates that this contaminant was not a COPC at this site.

Table E1-52. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2
2,4,6-Trinitrotoluene	—	1.71E-03	1.97E-03	—	1.39E-01	—	1.78E-03	9.74E-04	2.30E-02	6.94E-03	1.91E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	1.83E-08
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	1.03E-07	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	6.65E-08
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	5.12E-03
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	3.66E-07	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	2.73E-06	4.21E-06	—	—	1.62E-02
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—	—	—

Table E1-52. (continued).

COPCs	NODA		
	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	—	—	1.27E-05
2-Amino-4,6-Dinitrotoluene	—	—	—
2-Pentanone	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—
4-Chloro-3-methylphenol	—	—	—
Antimony	—	—	—
Arsenic	—	—	—
Benzene	—	—	—
Benzo(a)pyrene	—	2.60E-07	—
Benzo(g,h,i)perylene	—	—	—
Cadmium	—	—	—
Chrysene	—	—	—
Copper	—	—	—
Lead	—	—	—
Methapyrilene	—	—	—
Phenanthrene	—	5.17E-07	—
RDX	—	—	2.82E-05
Thallium	—	—	—
TPH-Diesel	—	—	—
Cs-137	—	—	—
Ra-226	—	—	—
U-235	—	—	—
U-238	—	—	—

Table E1-53. Intake, homegrown produce, noncarcinogenic (mg/kg-day or pCi/day) for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
											Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	3.18E-04	1.18E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	9.50E-06	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	—	—	5.71E-07	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	6.59E-04	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
<u>TPH-Diesel</u>	—	—	—	—	—	—	—	—	—	—	—	—

Notes: A blank cell indicates that this contaminant was not a COPC at this site.

Table E1-53. (continued).

COPCs	Firestation		Fieldstation		Mine Fuze		NOAA			NODA	
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2
2,4,6-Trinitrotoluene	—	3.99E-03	4.59E-03	—	3.25E-01	—	4.14E-03	2.27E-03	5.37E-02	1.62E-02	4.46E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	4.27E-08
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	2.41E-07	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	1.55E-07
Cadmium	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	1.77E-02
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	8.55E-07	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	6.37E-06	9.83E-06	—	—	3.77E-02
Thallium	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—

Table E1-53. (continued).

COPCs	NODA		
	Area 3	Area 4	CFA-633
2,4,6-Trinitrotoluene	—	—	2.97E-05
2-Amino-4,6-Dinitrotoluene	—	—	—
2-Pentanone	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—
4-Chloro-3-methylphenol	—	—	—
Antimony	—	—	—
Arsenic	—	—	—
Benzene	—	—	—
Benzo(a)pyrene	—	6.06E-07	—
Benzo(g,h,i)perylene	—	—	—
Cadmium	—	—	—
Chrysene	—	—	—
Copper	—	—	—
Lead	—	—	—
Methapyrilene	—	—	—
Phenanthrene	—	1.21E-06	—
RDX	—	—	6.58E-05
Thallium	—	—	—
TPH-Diesel	—	—	—

Table E1-54. Original exposure point concentrations (mg/kg or pCi/g) for the future residential scenario.

COPCs	BORAX-	BORAX-	BORAX-	BORAX-	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation	
	01	02	08	09							Area 1	Area 2
2,4,6-Trinitrotoluene	—	—	—	—	—	—	—	—	—	—	3.15E+00	6.85E-01
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—	6.03E-02
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	7.40E-02	—	—
Antimony	—	—	—	—	—	—	—	—	—	—	—	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	1.90E+00	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	—	—	—	v	—	1.66E-01	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	—	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	1.28E+02	—	—
Copper	—	—	—	—	—	—	—	—	—	—	—	—
Lead	—	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	—	—	—	—	—	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	4.33E+04	9.00E+03	—	—	—	—	—	—
Cs-137	3.95E+01	8.88E-01	5.44E+00	7.25E-02	—	—	3.47E+00	—	1.43E+01	—	—	—
Ra-226	—	—	—	—	—	—	3.50E-01	1.10E-01	—	—	—	—
U-235	3.15E-01	7.85E-02	—	—	—	—	8.99E-02	—	6.81E-02	—	—	—
U-238	1.21E+00	—	—	—	—	—	2.19E+00	—	—	—	—	—

Notes: A blank cell indicates that the COPC was not a chemical of concern at this site.

EPCs were taken from the 0-10 ft binds.

Table E1-54. (continued).

COPCs	Fieldstation n											
	Firestation			Mine Fuze			NOAA			NODA		
	Area 3	Area 4	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2	Area 3
2,4,6-Trinitrotoluene	—	4.85E+01	5.67E+01	—	4.01E+03	—	4.32E+01	2.01E+01	6.55E+02	1.92E+02	2.19E+00	—
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	1.12E+01	1.08E+01	2.58E-01	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	2.55E+00	2.43E+00
4-Amino-2,6-Dinitrotoluene	—	—	7.51E-01	—	—	6.30E-02	—	—	—	1.08E+01	2.83E-01	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	1.97E-01	—
Antimony	—	—	—	—	—	—	—	—	—	—	6.08E-01	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	7.00E-02	—	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	—	1.86E-01	—
Cadmium	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	—	—	—	—	—	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	—	8.31E+01	—
Lead	—	—	—	—	—	—	—	—	—	—	2.57E+01	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	7.00E-02	—	—	—	—	—	—	—	—	—	—	—
RDX	—	—	—	—	—	—	5.87E-02	1.40E-01	—	—	1.31E+02	—
Thallium	—	—	—	—	—	—	—	—	—	—	—	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—	—	—	—

Table E1-54. (continued).

COPCs	NODA	
	Area 4	CFA-633
2,4,6-Trinitrotoluene	—	3.21E-01
2-Amino-4,6-Dinitrotoluene	—	—
2-Pentanone	—	—
4-Amino-2,6-Dinitrotoluene	—	—
4-Chloro-3-methylphenol	—	—
Antimony	—	—
Arsenic	—	—
Benzene	—	—
Benzo(a)pyrene	1.76E-01	—
Benzo(g,h,i)perylene	—	—
Cadmium	—	—
Chrysene	—	—
Copper	—	—
Lead	—	—
Methapyrilene	2.11E-01	—
Phenanthrene	9.88E-02	—
RDX	—	3.15E-01
Thallium	—	—
TPH-Diesel	2.04E+02	—
Cs-137	—	—
Ra-226	—	—
U-235	—	—
U-238	—	—

Table E1-55. Site/area dimensions for the future residential scenario.

	Max Depth (ft)	Area of Site/ Group (ft ²)	Width of Site (ft)
BORAX-01	8	7.19E+03	5.94E+01
BORAX-02	1	9.97E+03	1.21E+02
BORAX-08	3	3.12E+04	6.58E+01
BORAX-09	0.5	3.47E+03	4.14E+01
EBR-08	18	9.49E+01	9.77E+00
EBR-10	12	9.69E+01	1.07E+01
LCCDA-01	14	1.19E+02	1.22E+01
LCCDA-02	14	1.29E+02	1.36E+01
OMRE	10	5.43E+03	9.04E+01
Burnring	2	1.44E+02	1.20E+01
Firestation Area 1	2	3.83E+05	7.50E+02
Firestation Area 2	2	1.59E+05	4.29E+02
Firestation Area 3	2	2.79E+02	3.10E+01
Firestation Area 4	2	2.28E+03	6.50E+01
Fieldstation Area 1	0.5	2.11E+03	3.70E+01
Mine Fuze Area 2	2	2.12E+06	1.00E+03
Mine Fuze Area 3	2	1.37E+02	1.03E+01
NOAA Area 2	2	8.05E+05	9.11E+02
NOAA Area 2a	0.33	4.16E+04	2.00E+02
NOAA Area 3	2	2.07E+05	7.46E+02
NOAA Area 5	2	1.80E+04	1.70E+02
NOAA Area 6	2	1.43E+04	1.24E+02
NODA Area 2	10	2.22E+06	1.57E+03
NODA Area 3	8	8.72E+06	2.94E+03
NODA Area 4	2	1.00E+04	1.00E+02
CFA-633	0.33	6.41E+04	2.98E+02
Railcar Area 2	2	2.10E+06	2.24E+03
Totals			
Group A	—	5.18E+04	2.87E+02
Group B	—	1.92E+02	2.05E+01
Group C	—	2.47E+02	2.58E+01
Group D	—	5.45E+05	1.28E+03
Group E	—	2.12E+06	1.01E+03
Group F	—	1.09E+06	2.15E+03
Group G	—	1.09E+07	4.61E+03

A Grouping/Cumulative Methodology will be used in the calculations of the following exposure pathways: Groundwater Ingestion, Inhalation of Fugitive Dust, Inhalation of Volatiles from Soil, Inhalation of Volatiles from Groundwater, External Radiation Exposure, and Dermal Absorption of Groundwater.

Group A consists of the following sites: Borax-01, Borax-02, Borax-08 and Borax-09.

Group B consists of the following sites: EBR-08 and EBR-10.

Group C consists of the following sites: LCCDA-01 and LCCDA-02.

Group D consists of the following sites: Firestation Areas 1 through 4.

Group E consists of the following site: Mine Fuze Areas 2 and 3.

Group F consists of the following sites: NOAA Areas 2, 2a, 3, 5 and 6

Group G consists of the following sites: NODA Areas 2 through 4

Burnring, Fieldstation, CFA-633, OMRE, and Railcar will be considered as individual sites and will not be calculated using the grouping/cumulative methodology.

The maximum depth of contamination that was found during the various sampling activities is used in the Max Depth column. Used nonvalidated data if that was the deepest detected contamination.

Table E1-56. Rad decayed exposure point concentrations by site, year 100 to 130 (pCi/g) for the future residential scenario.

COPCs	BORAX-01	BORAX-02	BORAX-08	BORAX-09	EBR-08	EBR-10	LCCDA-01	LCCDA-02	OMRE	Burnring	Firestation			
	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 1	Area 2			Area 1	Area 2	Area 3	Area 4
Cs-137	2.87E+00	6.47E-02	3.96E-01	5.28E-03	—	—	2.53E-01	—	1.04E+00	—	—	—	—	—
Ra-226	—	—	—	—	—	—	3.33E-01	1.05E-01	—	—	—	—	—	—
U-235	3.15E-01	7.85E-02	—	—	—	—	—	—	6.81E-02	—	—	—	—	—
U-238	1.21E+00	—	—	—	—	—	2.19E+00	—	—	—	—	—	—	—

Notes: A blank cell indicates that the COPC was not a chemical of concern at this site.

Table E1-56. (continued).

COPCs	Fieldstation			Mine Fuze			NOAA			NODA				CFA-633
	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2	Area 3	Area 4	Area 4	Area 4	
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table E1-57. Area weighted average of original exposure point concentrations (mg/kg or pCi/g) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Firestation	MineFuze	NOAA	NODA
2,4,6-Trinitrotoluene	—	—	—	—	2.62E+00	2.59E-01	1.89E+01	4.45E-01
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	3.28E-01	5.23E-02
2-Pentanone	—	—	—	—	—	—	—	2.45E+00
4-Amino-2,6-Dinitrotoluene	—	—	—	—	1.76E-02	—	1.89E-01	5.75E-02
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	3.99E-02
Antimony	—	—	—	—	—	—	—	1.23E-01
Arsenic	—	—	—	—	—	—	—	—
Benzene	—	9.40E-01	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	1.66E-01	3.59E-05	—	—	1.61E-04
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	3.77E-02
Cadmium	—	—	—	—	—	—	—	—
Chrysene	—	—	—	1.28E+02	—	—	—	—
Copper	—	—	—	—	—	—	—	1.69E+01
Lead	—	—	—	—	—	—	—	5.21E+00
Methapyrilene	—	—	—	—	—	—	—	1.93E-04
Phenanthrene	—	—	—	—	3.59E-05	—	—	9.02E-05
RDX	—	—	—	—	—	—	2.88E-02	2.67E+01
Thallium	—	—	—	—	—	—	—	—
TPH-Diesel	—	2.60E+04	—	—	—	—	—	1.86E-01
Cs-137	6.50E-01	—	1.21E-01	1.04E+00	—	—	—	—
Ra-226	—	—	2.14E-01	—	—	—	—	—
U-235	5.88E-02	—	4.31E-02	6.81E-02	—	—	—	—
U-238	1.68E-01	—	1.05E+00	—	—	—	—	—

Notes: A blank cell indicates that the COPC was not a chemical of concern at this site.

*This table was also used for airborne particulate area weighted average.

Table E1-58. Soil radionuclide exposure point concentrations for home grown produce by site, decay corrected to year 100 (pCi/g) for the future residential scenario.

COPCs	Borax-01	Borax-02	Borax-08	Borax-09	EBR-08	EBR-10	LCCDA-	LCCDA-	Firestation				
							01	02	OMRE	Burnring	Area 1	Area 2	Area 3
Cs-137	3.98E+00	8.94E-02	5.48E-01	7.30E-03	—	—	3.50E-01	—	1.44E+00	—	—	—	—
Ra-226	—	—	—	—	—	—	3.35E-01	1.05E-01	—	—	—	—	—
U-235	3.15E-01	7.85E-02	—	—	—	—	8.99E-02	—	6.81E-02	—	—	—	—
U-238	1.21E+00	—	—	—	—	—	2.19E+00	—	—	—	—	—	—

Notes: A blank cell indicates that the COPC was not a chemical of concern at this site.

Table E1-58. (continued).

COPCs	Fieldstation			Mine Fuze			NOAA			NODA			CFA-633
	Area 1	Area 2	Area 3	Area 2	Area 2a	Area 3	Area 5	Area 6	Area 2	Area 3	Area 4	Area 4	
Cs-137	—	—	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	—	—	—	—	—	—	—	—	—	—	—
U-235	—	—	—	—	—	—	—	—	—	—	—	—	—
U-238	—	—	—	—	—	—	—	—	—	—	—	—	—

Table E1-59. Groundwater concentrations by area (mg/L or pCi/L) for the future residential scenario.

COPCs	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
2,4,6-Trinitrotoluene	—	—	—	—	—	1.09E-02	1.07E-03	1.38E-01	1.12E-01	4.66E-02	6.35E-04
2-Amino-4,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
2-Pentanone	—	—	—	—	—	—	—	—	—	—	—
4-Amino-2,6-Dinitrotoluene	—	—	—	—	—	—	—	—	—	—	—
4-Chloro-3-methylphenol	—	—	—	—	—	—	—	—	—	—	—
Antimony	—	—	—	—	—	—	—	—	—	5.01E-04	—
Arsenic	—	—	—	—	—	—	—	—	—	—	—
Benzene	—	4.09E-04	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	—	—	—	5.78E-08	—	6.00E-11	—	—	—	9.43E-10	—
Benzo(g,h,i)perylene	—	—	—	—	—	—	—	—	—	3.80E-06	—
Cadmium	—	—	—	—	—	—	—	—	—	3.21E-02	—
Chrysene	—	—	—	4.15E-03	—	—	—	—	—	—	—
Copper	—	—	—	—	—	—	—	—	—	1.38E-01	—
Lead	—	—	—	—	—	—	—	—	—	—	—
Methapyrilene	—	—	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	2.27E-08	—	—	—	2.00E-07	—
RDX	—	—	—	—	—	—	—	—	1.20E-03	9.98E+00	7.89E-03
Thallium	—	—	—	—	—	—	—	—	—	1.14E-01	—
TPH-Diesel	—	—	—	—	—	—	—	—	—	—	—
Cs-137	—	—	—	—	—	—	—	—	—	—	—
Ra-226	—	—	3.85E-05	9.56E-04	—	—	—	—	—	—	—
U-235	1.93E-02	—	4.87E-04	2.84E-02	—	—	—	—	—	—	—
U-238	7.98E-02	—	1.15E-02	—	—	—	—	—	—	—	—

Table E1-60. Concentration of volatiles in air from indoor groundwater use (mg/m³) for the future residential scenario.

	BORAX	EBR	LCCDA	OMRE	Burnring	Firestation	Fieldstation	Mine Fuze	NOAA	NODA	CFA-633
Benzene	—	2.66E-05	—	—	—	—	—	—	—	—	—
Phenanthrene	—	—	—	—	—	1.48E-09	—	—	—	1.30E-08	—
Chrysene	—	—	—	2.70E-04	—	—	—	—	—	—	—

Table E1-61. Exposure parameters for the future residential scenario.

Exposure Parameter	Variable Name	Current and Future Occupational Worker	Variable Name	Future Residential, Adult	Variable Name	Future Residential, Child	Reference
Adherence Factor, Soil-to-Skin (mg/cm ²)	AFw	0.07	AFa	0.2	—	—	1
Averaging Time, Carcinogenic (day)	—	—	ATac	24500 ^a	—	—	2
Averaging Time, Noncarcinogenic (day)	ATwn	8750	ATan	10500	—	—	2
Body Weight (kg)	—	—	BWa	70	BWc	15	2
Exposure Duration (yr)	EDw	25	EDA	30	—	—	2
Exposure Duration for Soil Ingestion (yr)	EDw	25	EDas	24	EDcs	6	2
Exposure Frequency, (days/yr)	EFw	250	EFa	350	—	—	2
Exposure Time (hrs/day)	ETw	8	ETA	24	—	—	3
Exposure Time to Groundwater for Bathing (hrs/day)	—	—	ETWa	0.25	—	—	3
Fraction Ingested	—	—	FI	1	—	—	3
Gastrointestinal Absorption Efficiency (dim)	—	—	GI	0.05 ^b	—	—	3
Intake Rate, Inhalation (m ³ /hr)	—	—	IRI	0.83	—	—	2
Intake Rate, Produce Ingestion, Radionculcides, (g/day)	—	—	IRPar	1.67E+01	—	—	5
Intake Rate, Produce Ingestion, NonRads, (g/kg-day)	—	—	IRPan	2.76E-01	—	—	5
Intake Rate, Soil Ingestion (mg/day)	IRS _w	50	IRSa	100	IRSc	200	2
Intake Rate, Water Ingestion (L/day)	—	—	IRWa	2	—	—	2
Respirable Airborne Particulate Matter Concentration (mg/m ³)	—	—	Resp	0.013	—	—	4
Skin Surface Area Available for Soil Contact (cm ² /event)	SAws	3300	SAas	5700	SACs	2800	1
Skin Surface Area Available for Water Contact (cm ² /event)	—	—	SAaw	20000	—	—	1
Site-specific wind speed in mixing zone (m/s)	V	3.4	—	—	—	—	2
Mixing Height (m)	MH	2	—	—	—	—	2
Exposure Interval (s)	Tw	7.88E+08	Ta	9.46E+08	—	—	2
Soil Porosity (dim)	E	0.35	—	—	—	—	2
True Soil Density (g/cm ³)	RHO	1.5	—	—	—	—	2

a. The averaging time is based on a 350 d/year exposure period.

b. The GI was defaulted to 0.05 based on guidance in Appendix A of the Risk Assessment Guidance Manual (EPA 1989). This guidance states that a relatively conservative assumption for oral absorption in the absence of appropriate information would be 5%. Currently, Region 9 discusses the use of oral toxicity values for evaluating dermal exposures for their route-to-route extrapolation methods (EPA 1999b). They state that for many chemicals, a scientifically defensible database does not exist for making this conservative an adjustment of the oral slope factor/RfD to estimate a dermal toxicity value. Region 9 uses the current guidance (EPA 1999a), recommends that cadmium is the only contaminant requiring an adjustment factor. The 1999 Region 9 PRG calculations for cadmium are based on this adjustment. This risk assessment continued to conservatively apply the 5% adjustment.

Sources:

1. Environmental Protection Agency Region 9, Preliminary Remediation Goals, November 9, 1999,
<http://www.epa.gov/region9/waste/sfund/pfg/intro.html>.
2. DOE-ID, January 1994, Track 2 Sites: Guidance for Assessing Low Probability Hazard Sites at the INEL, DOE/ID-10389, Rev. 6, U.S. Department of Energy Idaho Operations Office.
3. DOE-ID, January 1999a, Waste Area Group 5, Operable Unit 5-12, Comprehensive Investigation/Feasibility Study, DOE/ID-10607, U.S. Department of Energy Idaho Operations Office
4. DOE-ID, 1992, Site Environmental Report, DOE/ID-12082, U.S. Department of Energy Idaho Operations Office. (Grand mean particulate matter concentration)
5. LMITCO, 1996, INEEL White Paper on the Food Crop Ingestion Exposure Route, Lockheed Martin Idaho Technologies.
6. U.S. EPA. 1999b. *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual Supplemental Guidance Dermal Risk Assessment, Interim Guidance*. EPA/540/R-99/005. Office of Solid Waste and Emergency Response, Washington, D.C. PB99-963312.